## Remarks

The non-final Office Action dated June 3, 2011, indicates claims 19-21 are allowed, and claims 7-8, 10-12, 16 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. The Office Action presents the following claim rejections: claims1-6, 13-15 and 17 stand rejected under U.S.C. § 102(b) over Czubatyj (U.S. Patent No. 5,825,046). In the following discussion, Applicant does not acquiesce to any rejections or averments in this Office Action.

Applicant appreciates the Examiner's indication of allowable subject matter. Regarding the remaining rejections, Applicant respectfully traverses the § 102 rejection of claims 1-6, 13-15, and 17 because the cited '046 reference lacks correspondence. For example, the asserted reference does not teach the claimed invention "as a whole" including, *e.g.*, aspects regarding a resistor switchable between at least three resistances by changing a portion of the phase change material from a first phase to a second phase; and the phase change material being a fast growth material. Because the reference does not teach these aspects, no reasonable interpretation of the asserted prior art can provide correspondence. As such, the rejections fail.

More specifically, the Office Action has not asserted that the cited references disclose a resistor switchable "between at least three different electrical resistance values by changing a corresponding portion of the layer of the phase change material from the first phase to the second phase." Applicant has reviewed the cited references, and it does not appear that the '046 reference describes changing of a portion of the layer of phase change material from a first phase to a second phase because the memory element of the reference is composed of both a phase change material and a dielectric. The '046 reference does not appear to generally describe a change in a single portion of the memory element (a combination of phase change material and dielectric). Further, the '046 reference does not describe changing of a portion of the phase change material itself. It appears that an alleged change in resistance occurs based on the heterogeneous mixing of a phase change material and a dielectric element rather than a change in the phase change material itself (as is required by the claims). The Office Action does not identify correspondence in this regard, describing a dynamic range of resistances

associated with a memory cell without reference to the claimed limitations requirement that a portion of the phase change material be changed from a first phase to a second phase of the switchable resistor. As a result, the '046 reference does not a describe portion of a phase change material changing from a first phase to a second phase because the reference does not appear to mention such a phase change, and the memory element described in the reference is a combination of a phase change material and a dielectric.

Moreover, the '046 reference does not provide correspondence with a "fast growth material" as in the claimed invention. The '046 reference lists "specific examples" of phase-change materials, however, these materials are not described with their relative growth speed or growth mechanism. While the growth rate of these materials is not described in the '046 reference, these materials appear to fall outside what one skilled in the art would consider a "fast growth material." For example, the '046 reference's teaching of a phase change material as being a modified form of a Te-Ge-Sb alloy, with an approximate combination of $Te_5Ge_2Sb_2$. *See* Col. 7:45-54 and Col. 8:40-44. Applicant discusses Te-Ge-Sb alloys, which uses nucleation in crystallization (slow growth), as being an alloy with the approximate composition of $Sb_2Te_5Ge_2$. *See* p. 1:6-16 and 3:8-25 of Applicant's specification. Accordingly, the '046 reference appear to describe cumulative prior art slow growth materials, rather than fast growth material as claimed.

Applicant further submits that the §102 rejection rlies upon an improper inherency argument. Specifically, the Office Action states that the "limitation 'fast growth material' is an inherent based on the materials disclosed in the ['046 reference]." Page 2 of the Office Action. Not only does the opposite appear to be the case, as discussed above, but the Office Action has offered no proof or evidence that would indicate that the material described in the '046 reference are inherently "fast growth material." Applicant submits that materials that are similar do not necessarily have the same properties. Consistent with MPEP § 2144.03, Applicant respectfully requests evidence in support of the proposition that such teaching is inherent. Because the '046 reference does not appear to describe a "fast growth material" used in the phase change layer, the reference cannot provide correspondence, and the rejection should be removed.

Moreover, not only does the '046 reference appear to describe slow growth material, but the phase change materials of the '046 reference fall outside what would be considered a "fast growth material" based on the Applicant's specification. Describing "fast growth material" based on the Applicant's specification does not read limitations into the claims, but aids in the understanding of the claimed limitations based on its "broadest reasonable interpretation." As previously brought to the attention of the Examiner: "[d]uring patent examination, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification.'" M.P.E.P. § 2111, *citing* *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) ("[t]he broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach."). Applicant describes "fast growth material" throughout the specification, including what is and what is not considered a "fast growth material." For example, Applicant's Specification describes that "fast growth material" is a class of materials that is distinguishable from known phase change materials based on a different crystal growth mechanism. In a more particular discussion, Applicant's Specification explains that "fast growth material" transitions at relatively high approximate constant speed where crystallization proceeds along the interface between the two phases. *See* p. 1:6-16 and 3:8-25 of Applicant's specification. As stated above, the Office Action has failed to establish correspondence with the material disclosed in the '046 reference which would at best appear to align with the Specification's discussion of previously-known phase change materials. *See, e.g.,* the '046 reference's teaching of a phase change material as being a modified form of a Te-Ge-Sb alloy, with an approximate combination of $Te_5Ge_2Sb_2$. *See* Col. 7:45-54 and Col. 8:40-44.

Applicant submits that, contrary to the Office Action's assertion, use of a qualitative adjective is not open to interpretation because one skilled in the art would understand the limitation based on what is commonly known in the art, and the characterization provided throughout the Applicant's specification. The use of "fast" is not simply as an adjective, but rather as part of a greater descriptive name given to a material having specific characteristics described within the specification. "Fast growth material" is characterized throughout the Applicant's specification, dependent claims (*See* claim 16) and independent claim 17 ("a fast growth material characterized by its

crystal growth along an interface") such that one skilled in the art would understand the claimed limitations.

Because the '046 reference does not appear to describe a "fast growth material" generally or based on the characterization of the material in the Applicant's specification, the reference cannot provide correspondence with the claims "as a whole," and the rejection should be withdrawn.

Applicant has amended the Abstract and claims 3 and 7 to remove reference identifications.

In view of the above, Applicant believes that each of the rejections is improper and should be withdrawn and that the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063 (or the undersigned).

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